

Data Concentrator for Modular and Distributed Control of Propulsion Systems, Phase II

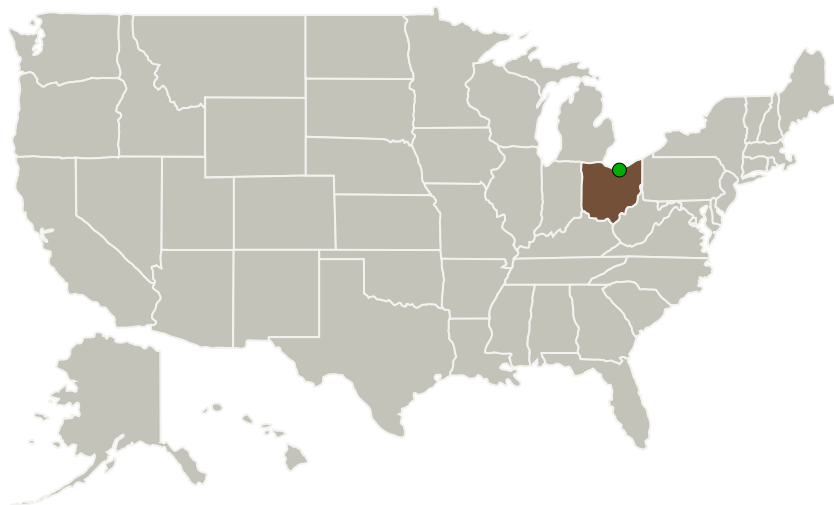
Completed Technology Project (2012 - 2015)



Project Introduction

Orbital Research proposes to develop, build and test 3 additional high temperature components for use in the design of a Data Concentrator Module in distributed turbine engine control at high temperatures. The concentrator receives analog and digital signals related to turbine engine control and communicates with a FADEC or high level command processor. This data concentrator follows the road map put forth by DECWG for use in creating a demonstration platform for turbine engine distributed controls communication development that operates at temperatures at least up to 225C. Phase I was the development of detailed specifications for each component needed for the system, as well as to define the total system specification. This entailed a combination of system design, compiling existing component specifications, laboratory testing, and simulation. The results showed the feasibility of the data concentrator. Phase II of this program will focus on three key objectives: The first objective will be to update Data Concentrator design modifications from DECWG and Prime Contractors. Secondly, to define the requirements for the three new high temperature ASICs. Finally to validate each design by testing over temperature and under load.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Orbital Research, Inc.	Lead Organization	Industry	Cleveland, Ohio
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations

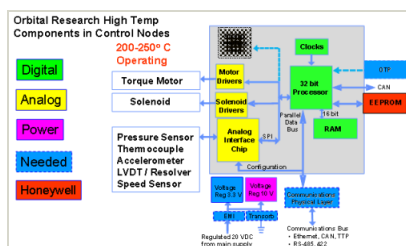
Ohio

Project Transitions

September 2012: Project Start

 August 2015: Closed out

Images



Briefing Chart

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<https://techport.nasa.gov/image/134524>

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Orbital Research, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

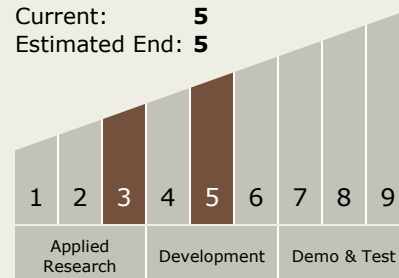
Carlos Torrez

Principal Investigator:

Mike Willett

Technology Maturity (TRL)

Start: **3**
 Current: **5**
 Estimated End: **5**



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Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.3 Aero Propulsion
 - └ TX01.3.2 Turbine Based Combined Cycle

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System